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# Driver Alertness Identification And Alarming System Using Haar Cascade Algorithm

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## ABSTRACT

Motorist fatigue has been one of the top causes of automobile accidents throughout the world in recent years. The state of the driver, i.e. drowsiness, is a simple way of determining driver fatigue. It is vital to recognise the driver's tiredness in order to protect lives and property. The purpose of this project is to construct a prototype of a drowsiness detection system. This is a real-time system that continuously captures photos and analyses the eye's condition using the approach described, as well as delivering warnings as required. Although various methods for assessing fatigue exist, this technique is fully non-intrusive and so has no effect on the driver, revealing the driver's genuine state. The retina's per-closing value is utilised to detect whether or not a person is tired. When a driver's eyelids close more than a particular amount, he or she is deemed drowsy. This system is made up of numerous OpenCv libraries, the most important of which being Haar-cascade. Furthermore, to improve the driver's security, as well as to check if the driver is adhering to the "do not drunk and drive" rule. Before the automobile starts, the amount of alcohol is detected, and if the driver is determined to be drunk, the automobile will not start. This keeps the driver out of trouble while simultaneously keeping him safe.

Keywords: Food Grain Quality , Safeguard food grain, Humidity sensor, Gas sensor, Temperature sensor.

## I. INTRODUCTION

Insufficient sleep, long hours of continuous driving, or other physical issues such as brain disorders cause drivers' attention levels to decline. According to various research on traffic crashes, driver fatigue is at blame for around 30% of all collisions. When a driver drives for longer than is normal for a person, they experience excessive weariness and sleepiness. The motorist may fall asleep or lose consciousness as a result of this. Drowsiness is a complex phenomenon characterised by a loss of attentiveness and awareness in the driver.

Despite the fact that there is no through means to sense tiredness, there are several incidental methods that may be used. The engine will not start if the alcohol level measured is above the threshold, and the driver will be warned that he or she has drank too much alcohol.

Drunk driving is one of the primary causes of fatal road accidents. According to the 2015 global status report on road safety, which is based on data from 180 countries, one out of every five road accidents is caused by drowsy driving, which accounts for roughly 21% of all road accidents, and this number is increasing every year. This clearly shows that the overall number of deaths caused by sleepy drivers on the road is relatively significant across the world. Driver fatigue, intoxication, and irresponsibility have all been cited as major contributors to traffic accidents. In many locations, this has had an influence on many people's lives and families. Physiological measurements such as brain waves, heart beat, and pulse rate require some form of physical link with the driver, such as connecting an electrode to the driver's body. This, however, creates problematic driving conditions. On the other hand, ocular measurement may be done without any physical link. An ocular measure to estimate driver eye condition and predicted vision based on eye closure is excellent for real-world driving scenarios since it can identify the eyes open/closed condition without the usage of a camera.

## II. EXISTING SYSTEM

Drowsy driving is the greatest cause of fatalities in car accidents, according to reports. Many research has been focused on identifying drivers' sleepiness using their behavioral or physiological indicators which include ECG and artery pulse waves in order to avoid drowsy driving. However, little research has been done on the connection between head motion and driver fatigue. In this experiment, we sought to investigate if there was a relationship between head driving motion and fatigue. The subject's head and automobile seat were fitted with two acceleration sensors. Subjects were instructed to drive an automobile in two different states: alert and sleepy after more than 20 hours of sleep deprivation. The difference in head and vehicle seat velocity was determined, and the results reveal that head motion reduces with driver sleepiness.

## III. PROPOSED WORK

This project may be carried out in two ways: by monitoring physiological changes such as brain signals, pulse rate, and eye flickering, and by measuring physical changes such as saggy position, inclining of the driver's head, and the open/close conditions of the eyes. Detecting electrodes would have to be placed straight front on the driver's body, which would be uncomfortable and distracting to the driver, despite the fact that this approach is the most exact. Long periods of driving can also cause perspiration to form on the sensors, decreasing their ability to screen accurately.

As a result, the amount of eye closure, also known as (PERCLOS) percentage of closure, will be the primary emphasis of this technique, as it gives the most reliable information on sleepiness. It is indeed non-intrusive in nature; thus, it has no effect on the driver's state of mind, and the motorist is completely at ease with it. This method is unaffected by environmental factors such as road conditions. According to the set threshold value, the situation of micro sleep is also identified. Face recognition and tracking, human eye detection and location, human visual recording, eye health detection, and driver tiredness testing are all part of the system's development.

The detection framework's main components were the detection and positioning of human eyeballs, as well as driver tiredness testing. The fraction of open and closed eyes with the overall number of images for a

certain period was computed as an improved approach for quantifying the driver's PERCLOS estimation. The Alcohol Sensor will be added to it to detect the amount of alcohol consumption. If the driver has ingested alcohol in excess of the threshold value, the vehicle ignition will be disabled.

## IV. LITERATURE SURVEY

Monitoring Physiological Characteristics:
The procedures that are best, in terms of accuracy, are those that are related to human physiological phenomena. This approach works in two ways: it measures the state of physical signals including brain signals, pulse rate, and eye flickering, as well as physical alterations such as drooping posture, head tilting, and the open/closed positions of the eyes.
While the first method is the most precise, it is not practical since monitoring devices have to be placed directly to the car driver's body, which would be inconvenient and disrupting. Furthermore, prolonged driving causes sweat on the devices, dropping their capacity to detect exactly.
The second technology, which uses optical sensors in security cameras to detect changes, is better equipped and trained driving circumstances since it is non-intrusive.
A Dedicated System for Monitoring of Driver's Fatigue K.Subhashini Spurjeon, Yogesh Bahindwar:
Describe the road accidents. Road accidents occur when a driver is not paying attention. The author of this work describes a real-time method for assessing a driver's video sequences and determining his or her degree of attentiveness. The author calculates the percentage of eyelid closure for this reason. The closing of one's eyes serves as a sleepiness signal.
Driver fatigue and drowsiness are the leading reasons of traffic incidents on the road. A potential strategy for accident prevention accidents caused by human factors is to monitor the driver's state of attentiveness and transmit a warning while he or she is not giving proper attention to the road. Ex-tracking visual attributes might be employed to start tracking weariness. This may be accomplished with the help of a computer vision system.

Drowsiness Warning System Using Artificial Intelligence, Nidhi Sharma, V. K. Banga:
The authors of this study explore numerous AI (artificial intelligence) algorithms for sensing system tiredness. The tiredness of the driver is a significant element in automobile accidents. With increasing tiredness, driving performance deteriorates, and the consequent crashes result in morel car accidents. Intelligent vehicles have piqued people's curiosity in recent years. Intelligent vehicle research is already underway, and it will transform how drivers and teams interact in the future. Many accidents could be avoided if a detecting device is included in automobiles. Analyzing driver tiredness may be done using a variety of methods. The majority of published literature on computer vision techniques to tiredness detection has centered on analyzing eye movements and head movements.

A Yawning Measurement Method to Detect Driver Drowsiness, Behnoosh Hariri, et.al:
Describe that the drowse is the major issue behind the road accidents. The usage of assistive devices that monitor a driver's level of attentiveness and inform the driver if they become drowsy can help prevent accidents.
The author of this research proposed a new method for detecting driver tiredness depending on yawning measurement.
This includes real-time recognition and monitoring of the driver's face, detection and recognition of the mouth shape, and yawning identification based on monitoring for both rate and quantity of modifications in the mouth shape region.

## V. BLOCK DIAGRAM

## VI. CONCLUSION:

The following steps were taken to implement sleepiness detection using the Raspberry Pi: Successful video capture in real time using a camera and Alcohol level detection was successful.

To avoid this, we may build and install a motor-driven system that is synchronised with the warning signal, causing the vehicle to automatically slow down after receiving the warning signal. We can also avoid using the Raspberry Pi, which isn't good enough for video processing, by using our own phone as the hardware. This may be accomplished by creating a suitable smartphone app that will do the same functions as the Raspberry Pi, but with a faster and more efficient response.

## VII. FUTURE SCOPE

Our technology detects the sleepy condition of the eye and sends out an alarm signal or warning, which could be in the form of sound or any other medium. However, the driver's response since being notified may not be necessary to prevent the accident from occurring, implying that if the motorist is sluggish to reply to the warning signal, an accident may occur.

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